

AMENDMENTS TO THE CLAIMS

The following listing of claims, in which text to be added is underlined, will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently amended) An implantable medical device that provides a valve for regulating fluid flow through a body vessel, comprising:

a support frame having radially compressed and radially expanded configurations; and

at least one leaflet at least partially defining a valve orifice that regulates said fluid flow, the at least one leaflet having first and second edges and being moveable between a first position that permits said fluid flow in a first direction and a second position that substantially prevents said fluid flow in a second, opposite direction, the first edge attached to the support frame and the second edge being free of the support frame;

wherein a portion of the support frame and the second edge of the at least one leaflet cooperatively define an opening that permits a controlled amount of fluid flow to pass through said medical device in the second, opposite direction, the opening having a substantially fixed size and being spaced from the valve orifice along an axis of said implantable medical device.

2. (Previously presented) The implantable medical device according to claim 1, wherein the support frame is a self-expandable support frame.

3. (Previously presented) The implantable medical device according to claim 2, wherein the support frame is formed of a nickel-titanium alloy.

4. (Previously presented) The implantable medical device according to claim 1, wherein the at least one leaflet is formed of a bioremodellable material.

5. (Previously presented) The implantable medical device according to claim 4, wherein the bioremodellable material comprises an extracellular matrix material.

6. (Previously presented) The implantable medical device according to claim 4,

wherein the bioremodellable material comprises small intestine submucosa.

7. (Currently amended) An implantable medical device that provides a valve for regulating fluid flow through a body vessel, comprising:

_____ a support frame having radially compressed and radially expanded configurations; and

_____ at least one leaflet at least partially defining a valve orifice that regulates said fluid flow, the at least one leaflet having first and second edges and being moveable between a first position that permits said fluid flow in a first direction and a second position that substantially prevents said fluid flow in a second, opposite direction, the first edge attached to the support frame and the second edge being free of the support frame;

_____ wherein a portion of the support frame and the second edge of the at least one leaflet cooperatively define an opening that permits a controlled amount of fluid flow to pass through said medical device in the second, opposite direction, the opening being spaced from the valve orifice along an axis of said implantable medical device; and

[The implantable medical device according to claim 1, further comprising] at least one suture attaching the first edge of the at least one leaflet to the support frame.

8. (Currently amended) An implantable medical device that provides a valve for regulating fluid flow through a body vessel, comprising:

_____ a support frame having radially compressed and radially expanded configurations; and

_____ at least one leaflet at least partially defining a valve orifice that regulates said fluid flow, the at least one leaflet having first and second edges and being moveable between a first position that permits said fluid flow in a first direction and a second position that substantially prevents said fluid flow in a second, opposite direction, the first edge attached to the support frame and the second edge being free of the support frame;

_____ wherein a portion of the support frame and the second edge of the at least one leaflet cooperatively define an opening that permits a controlled amount of fluid flow to pass through said medical device in the second, opposite direction, the opening being spaced from the valve orifice along an axis of said implantable medical device; and

[The implantable medical device according to claim 1,]wherein the at least

one leaflet comprises first and second leaflets.

9. (Previously presented) The implantable medical device according to claim 1, wherein the opening has a total open area; and

wherein the total open area of the opening is sized to be less than the cross-sectional area of said body vessel at a desired point of treatment in said body vessel.

10. (Previously presented) The implantable medical device according to claim 1, wherein the opening has a total open area; and

wherein the total open area of the opening is sized to be less than about 50% of the cross-sectional area of said body vessel at a desired point of treatment in said body vessel.

11. (Previously presented) The implantable medical device according to claim 1, wherein the opening has a total open area; and

wherein the total open area of the opening is sized to be less than about 25% of the cross-sectional area of said body vessel at a desired point of treatment.

12. (Withdrawn) The implantable medical device according to claim 1, further comprising a moveable flap adjacent the opening and adapted to temporarily and substantially close the opening.

13. (Previously presented) An implantable medical device that provides a valve for regulating fluid flow through a body vessel comprising:

an expandable support frame; and

at least one leaflet attached to the support frame and at least partially defining a valve orifice that regulates said fluid flow, the at least one leaflet being formed of a bioremodellable material and moveable between a first position that permits said fluid flow in a first direction and a second position that substantially prevents said fluid flow in a second, opposite direction;

wherein the support frame and the at least one leaflet cooperatively define an opening that permits a controlled amount of fluid flow to pass through said medical device in the second, opposite direction, the opening being spaced from the valve orifice along an axis of said implantable medical device.

14. (Previously presented) The implantable medical device according to claim 13, wherein the bioremodellable material comprises an extracellular matrix material.

15. (Previously presented) The implantable medical device according to claim 13, wherein the bioremodellable material comprises small intestine submucosa.

16. (Withdrawn) The implantable medical device according to claim 13, further comprising a moveable flap adjacent the opening and adapted to temporarily and substantially close the opening.

17. (Withdrawn) An implantable medical device that provides a valve for regulating fluid flow through a body vessel, comprising;

an expandable support frame; and

at least one leaflet attached to the support frame, the at least one leaflet being formed of a bioremodellable material and movable between a first position that permits said fluid flow in a first direction and a second position that substantially prevents said fluid flow in a second, opposite direction, the at least one leaflet defining an opening that permits a controlled amount of fluid flow in the second, opposite direction.

18. (Withdrawn) The implantable medical device according to claim 17, wherein the bioremodellable material comprises an extracellular matrix material.

19. (Withdrawn) The implantable medical device according to claim 17, wherein the bioremodellable material comprises small intestine submucosa.

20. (Withdrawn) The implantable medical device according to claim 17, wherein the opening is substantially square, substantially triangular, substantially ovoid, or teardrop-shaped.

21. (Withdrawn) The implantable medical device according to claim 17, further comprising a moveable flap adjacent the opening and adapted to temporarily and substantially close the opening.

22. (Withdrawn) An implantable medical device that provides a valve for regulating fluid flow through a body vessel, comprising;

an expandable support frame;

a first leaflet formed of a bioremodellable material and having first and second edges, the first edge attached to the support frame, the first leaflet defining a first opening; and

a second leaflet formed of a bioremodellable material and having third and fourth edges, the third edge attached to the support frame and the fourth edge cooperating with the second edge of the first leaflet to define a valve aperture having open and closed configurations, the second leaflet defining a second opening;

wherein the first and second openings permit a controlled amount of fluid flow through said medical device when the valve aperture is in the closed configuration.

23. (Withdrawn) The implantable medical device according to claim 22, wherein the bioremodellable material comprises an extracellular matrix material.

24. (Withdrawn) The implantable medical device according to claim 22, wherein the bioremodellable material comprises small intestine submucosa.

25. (Withdrawn) An implantable medical device that provides a valve for regulating fluid flow through a body vessel, comprising:

a support frame;

at least one leaflet attached to the support frame and being moveable between a first position that permits said fluid flow in a first direction and a second position that substantially prevents said fluid flow in a second, opposite direction, the leaflet defining an opening that permits a controlled amount of fluid flow in the second, opposite direction; and

a moveable flap adjacent the opening and adapted to temporarily and substantially close the opening.

26. (Withdrawn) The implantable medical device according to claim 25, wherein the at least one leaflet is formed of a bioremodellable material.

27. (Withdrawn) The implantable medical device according to claim 26, wherein the bioremodellable material comprises an extracellular matrix material.

28. (Withdrawn) The implantable medical device according to claim 26, wherein the bioremodellable material comprises small intestine submucosa.